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Federally Exempted Linear Fluorescent Lamps

Energy Commission Staff Workshop

Developed by Energy Solutions
on behalf of the California IOUs

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IOU Involvement in Federally Exempted Linear Fluorescent Lamps

The Investor-Owned Utilities responded to the Energy Commission's April 4, 2018 invitation to submit proposals on this measure and submitted written comments on the following dates:

May 24, 2018: Codes and Standards (CASE) Report Docketed



June 12, 2018:
Revised* CASE
Report Docketed

* Revisions include updates to the Statewide Savings

California Energy Commission Staff Report & IOU CASE Report

Both proposals cover similar scope, with minimum efficacy standards for four types of linear fluorescent lamps not federally covered:

1. High Color Rendering Index (CRI) (> 87) lamps
2. Impact-resistant lamps
3. 2-foot linear lamps
4. 3-foot linear lamps

June 2018 CASE Report

Proposes:

1. Efficacy: Standards based on likely LED-level performance
2. Shipments: based on data from DOE EERE (2014) with projections through 2047

June 2019 CEC Staff Report

Proposes:

1. Efficacy: Performance standards levels based on existing federal standards for covered linear fluorescent lamps
2. Shipments: based on 2015 DOE Lighting Market Characterization Report

Energy Commission Staff Report & IOU CASE Report

Lamp type	Correlated color temperature (CCT) in degrees kelvin	CEC Staff Report minimum average lamp efficacy in lumens per watt (LPW)	IOU CASE Report minimum average lamp efficacy in lumens per watt (LPW)
4-foot medium bi-pin	4,500K	92.4	110
	>4,500K and 7,000K	88.7	110
2-foot U-shaped	4,500K	85	85
	>4,500K and 7,000K	83.3	83
8-foot slimline	4,500K	97.0	110
	>4,500K and 7,000K	93.0	110
8-foot high output	4,500K	92.0	92.0
	>4,500K and 7,000K	88.0	88.0
4-foot miniature bi-pin standard output	4,500K	95.0	110
	>4,500K and 7,000K	89.3	110
4-foot miniature bi-pin high output	4,500K	82.7	110
	>4,500K and 7,000K	76.9	110
Less than 4-foot	ALL	115	110

Summary

- For most product classes, the Energy Commission proposed efficacy levels for state-regulated linear lamps that would require high efficiency T8 level performance. For all product classes other than 8' high-output lamps, the Statewide IOU CASE Team recommends that Energy Commission set standards for these products at the higher efficacy performance levels proposed in the CASE report. These levels were found to be cost-effective and feasible.
- The Energy Commission's proposed efficacy level for less than 4-foot lamps is more stringent than the Statewide IOU CASE Team's proposal, and the IOU Team supports this decision for increased savings.

Supporting Research

High-CRI Loophole

- High-CRI, low-efficacy T12s are now available from at least 11 manufacturers, and offered for sale at 5 of the online retail outlets we have analyzed.
- Based on online retail data, high-CRI T12 median efficacy is 59 LPW, and high-CRI T8 median efficacy is 83 LPW (4-foot linear).
- Based on online retail data, high-CRI 4' T12s are offered as low as \$2.07 in 30 lamp cases

Ballast Compatibility and Replacement Costs

- At least six manufacturers have Type A TLEDs, starting from \$4.74 per lamp (12 lamp case 4-foot TLED)
- 8-foot linear LEDs are available, some are plastic enclosure (impact-resistant)

*Based on online retailer data collected by IOU team in 2019

Supporting Research

2' & 3' Lamps

- IOU data and research confirms prevalence of <4-ft lamps
- 50+ unique model numbers of 2- and 3-ft Linear T12 and T8s across 12 brands
- 15 unique model numbers of U-bend lamps across 6 brands
- Based on online retail data, low efficacy 2-ft T12 prices are as low as \$2.03 per lamp
- Average Efficacy of LED Equivalents for 2-ft T12 linear lamps (2' TLED) is 121 LPW

IOUs Support the Energy Commission Staff Proposal

- The Statewide Utility Team supports the Energy Commission's setting of **minimum efficiency requirements** for these lamp types.
- Since federal standards linear fluorescent lamps have become more stringent (requiring high efficiency T8 performance), exempted products have been proliferating, and these are often low cost, low efficacy products representing a loophole.
- The proposed efficiency requirements effectively close the loophole in the federal regulations and **prevent shipment of more than 7.8 million annual inefficient lamp** shipments to California.
- The proposed efficiency requirements will allow the State of California to capture significant first-year energy savings estimated at **340 GWh/year**.*

* Based on the Energy Commission's stock and shipment projection for 2021.

Thank you

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